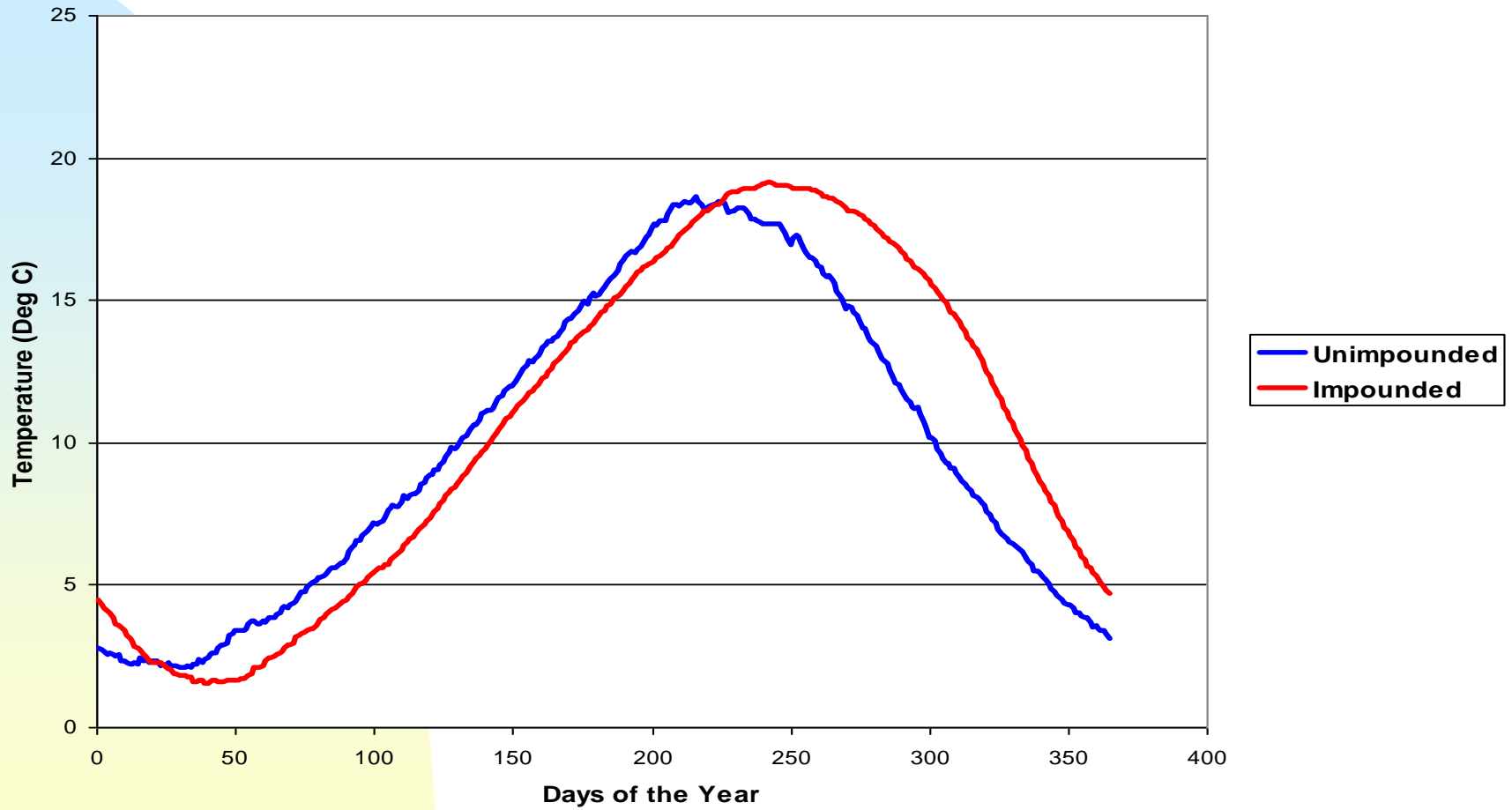


# Substance of the Draft TMDL

- Highlights and quantifies the impacts of dams on temperature – affects state TMDL and Re-licensing efforts
- Point source heat falls within allowable temperature increases – helps permitting
- Tributary heat is minor factor compared to dams
- TMDL may encourage Fed agencies to pursue operational changes to improve temperatures.
- Standards may not be achievable in much of mainstems

**Simulated Temperature of Columbia River for Impounded and Unimpounded System at River Mile 546 (site of Chief Joseph Dam)**



# Tiny Allocations

- Standards call for near-natural temperatures
- Worst case at downstream end of system, due to cumulative effects of dams and pt sources
- Pt sources take most of allowed increase
- Dams need to release near-natural temps
- A handful of small dams are OK now

# Options for Dams

- Dam removal – not on table
- Dworshak cold water release – enhancement
- Grand Coulee powerhouse operations
- Pool depth management
- Local improvements – e.g., fish ladders
- Flood control operations – seldom discussed

## Temperature Improvements Needed at Each Columbia River Target Site

